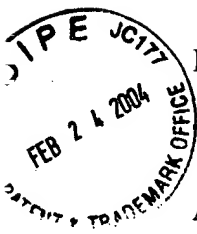


Maye AF/1745

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



In re Application of

Tsunemori Yoshida

Appln. No. : 09/660,394

Filed : October 31, 2002

For: SEPARATOR FOR FUEL CELL AND A  
METHOD OF PRODUCING THE SAME

)  
)  
) Art Unit: 1745  
)  
) Ex: L. Weiner  
)  
) Attorney/Docket: YOSH3007/FJD  
)  
)  
)

**BRIEF ON APPEAL (3 COPIES)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith are three (3) copies of a Brief on Appeal in the above-identified application.

1. ☐ An Oral Hearing is requested.
2. ☐ An Oral Hearing is requested on \_\_\_\_\_.
3. ☐ An extension of time for filing the Brief on Appeal  
☐ is hereby requested.  
☐ was requested on \_\_\_\_\_.
4. ☐ A Verified Statement under 37 CFR 1.9 and 1.27  
☐ is enclosed.  
☐ is of record in this application.

The fee is calculated as follows:

	Large Entity	Small Entity	Amount
Filing Brief on Appeal	\$330.00	\$165.00	\$330.00
Request for Oral Hearing	290.00	145.00	
Request for Extension of Time for Filing Brief			
(X) 1 month	110.00	55.00	\$110.00
( ) 2 months	420.00	210.00	
( ) 3 months	950.00	475.00	
( ) 4 months	1,480.00	740.00	
( ) 5 months	2,010.00	1,005.00	

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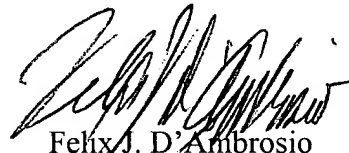
TOTAL DUE: \$440.00

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5. ( ) No fee required.
6. (X) A check in the amount of \$440.00 is enclosed. (Check No. 39085)
7. ( ) Please charge Deposit Account No. 02-0200 in the amount of \$\_\_\_\_\_. A duplicate of this sheet is enclosed.
8. ( ) The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. \_\_\_\_\_. A duplicate of this sheet is enclosed.
- ( ) Any patent application processing fees under 37 CFR 1.17.
- ( ) The Issue Fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).
- ( ) Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,



Felix J. D'Ambrosio  
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February 24, 2004

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Filed : October 31, 2002 )  
For : SEPARATOR FOR FUEL CELL AND A )  
METHOD OF PRODUCING THE SAME )

**BRIEF ON APPEAL**

**BOX APPEAL**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to the provisions of 37 CFR 1.192, submitted herewith is  
Applicant/Appellant's Brief on Appeal.

**REAL PARTY IN INTEREST**

The real party in interest, that is the party that holds the entire right, title and  
interest in this application is the assignee, Nippon Pillar Packing Co., by assignment from the  
inventor, recorded as Reel 011109, and Frame 0775 on September 12, 2000

**RELATED APPEALS AND INTERFERENCES**

No appeal or interference is pending in any related application.

**STATUS OF CLAIMS**

Claims 1 - 4, 8 - 10 and 13 - 15 are finally rejected under 35 USC 102 and 103, as  
well as for double patenting under the judicially created doctrine of obviousness-type double

patenting. The double patenting rejection will be obviated by the filing of a terminal disclaimer, which will be filed once the issues regarding the rejections under 35 USC 102 and 103 are resolved.

Regarding the art rejections: claims 1,2 8,9 and 13 - 15 are finally rejected under 35 USC 102(e) as being anticipated by Braun et al; claims 1 and 2 are finally rejected under 35 USC 103(a) as obvious over Braun et al; and claims 3, 4 and 10 are finally rejected under 35 USC 103(a) as being unpatentable over Braun et al in view of Uemura et al

#### STATUS OF AMENDMENTS

A final rejection was issued on July 22, 2003 indicating that claims 1 - 4, 8 - 10 and 13 - 15 were finally rejected.

A REQUEST FOR RECONSIDERATION was filed on November 24, 2003 along with a NOTICE OF APPEAL.

#### SUMMARY OF THE INVENTION

(the page and line references are to the specification)

The present invention provides the existing state-of-the art with both a unique separator and to a method of producing the separator for a fuel cell of a solid polymer electrolyte type or phosphoric acid type (pg. 2, lines 9 and 10). Because of the invention, the separator can be made to a uniform and predetermined shape while ensuring good conductivity by the reduced resin content (pg 5, lines 1-3).

The separator consists of a complex which is configured by bonding graphite powder by means of a thermosetting resin. The composition ratio of the graphite powder in the complex is set to 85 to 97 wt. %, and of the thermosetting resin to 3 to 15 wt. %. The average particle diameter of the graphite powder is set to a range of 15 to 125  $\mu\text{m}$ . The complex is

molded at a pressure of 10 to 100 MPa. (pg 5, lines 15 - 22). The preferred ranges for the above parameters are: 4 to 9 wt. % (thermosetting resin); 40 to 100  $\mu\text{m}$  (average particle diameter); and 20 to 50 MPa (molding pressure) (pg. 5, lines 23 - 25 to pg 6, lines 1 and 2).

The complex so configured is first cold-molded into a shape similar to a final molded shape to form a preliminary molded member. The preliminary molded member is then placed in a mold and molded into its final shape by applying a pressure of 10 to 100 MPa, and preferably to a pressure of 20 to 50 MPa (pg 7, lines 20 - 25 and pg 8, lines 1 - 3). The dimensions of the preliminary molded member in the direction of the molding pressure are set to be about 1.0 to about 2.0 times the dimensions of the final molded member (pg 7, lines 7 - 10).

Note that the molding pressure used to mold the final molded member is higher than the molding pressure used to mold the preliminary molded member.

### ISSUES

With the double patenting issue set aside since applicant will file a terminal disclaimer, there remains are three (3) issues in this appeal:

(1) Are claims 1, 2, 8, 9 and 13 - 15 anticipated under 35 USC 102(e) over Braun et al?

(2) Are claims 1 and 2 unpatentable for obviousness under 35 USC 103(a) over Braun et al? and

(3) Are claims 3, 4 and 10 unpatentable under 35 USC 103(a) over Braun et al in view of Uemura et al?

### GROUPING OF THE CLAIMS

Claim 1 is defined in independent form, as is claims 8, while claims 2- 4 are in

dependent form depending, ultimately from claim 1, and claims 9, 10 and 13 - 15 are in dependent form depending, ultimately from claim 8.

### ARGUMENT

(1)

#### **CLAIMS 1, 2, 8, 9 and 13 - 15 ARE NOT ANTICIPATED UNDER 35 USC**

#### **102(e) BY BRAUN ET AL BECAUSE THERE IS NOT ELEMENT BY ELEMENT OR STEP BY STEP COINCIDENCE OF THE CLAIMS WITH BRAUN ET AL**

Anticipation under 35 USC 102 requires element by element coincidence for an article or device claim, while for a method claim it requires step by step coincidence. Each element or each step must be found in a single reference, *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Claim 1 defines the separator to include certain graphite and thermosetting resin compositions and a final shape formed from a preliminary shape where the pressure applied to the preliminary shape to form the preliminary shape is lower than the pressure applied to the preliminary shape to form the final shape. Claim 8 defines the method whereby the separator of claim 1 is formed.. Here again the preliminary shape is formed by a pressure that is lower than the pressure used to form the final shape.

The two stage feature of the present invention, namely, preliminary and final, is not merely a change in a pressure range, but a conscious application of pressure to achieve a specific effect. The *reason* for applying the pressure to achieve the two feature result is as important as the magnitude of the pressure that is applied.. Braun et al does not, it is respectfully submitted, reveal a reason which is similar to that of the present invention.

Braun et al discloses a preform made of a mixed blend of carbon particles . The blend is compressed at a pressure of 5 - 100 (10)<sup>6</sup>N/m<sup>2</sup> at a temperature which is below the melting temperature of the polymer constituent of the blend, and preferably at room temperature. The mold platens are brought together at a clamping pressure of about 1-15 (10)<sup>6</sup>N/m<sup>2</sup> ***and trapped gas within the mold is removed by a degassing step in which a vacuum is applied.*** Following this degassing, the mold clamping pressure is increased to about 5-75 (10)<sup>6</sup>N/m<sup>2</sup>. The lower pressure is used during the degassing step and ***not to form a preliminary shape.*** In fact, Braun et al says nothing about a preliminary shape. Its existence is assumed by the examiner. But in fact it does not exist. Braun et al does not teach increasing pressure for ***further shaping.*** Without this teaching we are missing the element and step factors of the equation for 35 USC 102 to apply.

The examiner, it is respectfully submitted, is taking too much liberty with Braun et al vis-a-vis the claims on appeal. There simply is no basis in Braun et al which supports the conclusion that Braun et al teaches the formation of a preliminary shape which comprises an element (claim 1) as well as a step (claim 8) of the invention.

Relative to the product by process discussion advanced by the examiner, it should be noted that ***Atlantic Thermoplastics Co., Inc. v. Faytex Corp.***, 23 USPQ2d 1481 (Fed. Cir. 1992) tells us that the process should not be ignored when considering the product. The formation of the two shapes noted above ***must*** be taken into consideration when considering whether or not to allow the claims on appeal. To ignore the two formations is to ignore an important feature of the present invention.

(2)

**CLAIMS 1 AND 2 ARE NOT RENDERED UNPATENTABLE UNDER 35**

**USC 103(a) OVER BRAUN ET AL**

For 35 USC 103 to apply when considering Braun et al it is necessary for Braun et al to teach or suggest the invention, *In re Baird*, 29 USPQ2d 1550 (Fed. cir, 1994). This means that Braun et al must teach or suggest the two stage feature noted in (1) above. As discussed in (1) above, Braun et al does not teach the two stage feature. the question then becomes: does it suggest it? It is respectfully submitted that it does not. As noted above, providing for a changing pressure range does not amount to a suggestion that a preliminary shape can be formed followed by a final shape using a higher pressure value. The person skilled in the art is not omniscient. He must be told in the reference in a clear manner that a feature or features of a claimed invention are at least desirable. Nothing of the sort can be found in Braun et al

(3)

**CLAIMS 3, 4 AND 10 ARE NOT UNPATENTABLE UNDER 35 USC 103**

**OVER BRAUN ET AL IN VIEW OF UEMURA ET AL**

A proper application of 35 USC 103 requires that a teaching basis exist for a proposed combination of references. See *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), and more recently, *In re Rouffet*, 47 USPQ2d 1453 (Fed, Cir. 1998).

For there to be a basis for combining Braun et al and Uemura et al there must be a teaching or suggestion of the two stage feature of the invention. The examiner appears to concede that Uemura et al does not teach or suggest the two stage feature of the present invention because it is relied upon for a teaching of the particle size of the graphite powder only. No



mention is made of the two stage feature of the present invention.

Given that the teaching of the particle size from Uemura et al can be applied to the teaching of Braun et al, it is still necessary to find in either Braun et al or Uemura et al a teaching or suggestion of the two stage feature that is being claimed by the present invention. None can be found in either reference.

### SUMMARY

The two stage feature of the present invention whereby a preliminary shape is followed by a final shape with the final shape being produced utilizing a higher pressure than is used to form the preliminary shape is neither taught or suggested in the references of record. Lacking this teaching or suggestion, it is respectfully submitted that claims 1 - 4, 8 -10 and 13 - 15 cannot be anticipated (35 USC 102) or rendered unpatentable (35 USC 103) by Braun et al and/or Uemura et al

Respectfully submitted



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## APPENDIX

1. A separator for a fuel cell consisting of a complex which is configured by bonding graphite powder particles to each other by a thermosetting resin to form the separator, wherein:

a composition ratio of said graphite powder in said complex is set to 85 to 97 wt % and a composition ratio of said thermosetting resin in said complex is set to 3 to 15 wt. %;

an average particle diameter of said graphite powder is set to a range of 15 to 125  $\mu\text{m}$ ;

said complex is first cold-molded at a pressure of 2 to 10 MPa to form a preliminary molded member; and

said preliminary molded member resultantly obtained is molded at a pressure of 20 to 50 MPa.

2. A separator for a fuel cell according to claim 1, wherein the composition ratio of said thermosetting resin in said complex is set to a range of 4 to 9 wt. %.

3. A separator for a fuel cell according to claim 1, wherein the average particle diameter of said graphite powder is set to a range of 40 to 100  $\mu\text{m}$ .

4. A separator for a fuel cell according to claim 2, wherein the average particle

diameter of said graphite powder is set to a range of 40 to 100  $\mu\text{m}$ .

8. A method of producing a separator for a fuel cell configured by molding a complex of graphite powder and thermosetting resin, in which composition ratios of graphite powder to thermosetting resin are set to 85 to 97 wt. % of graphite powder and 3 to 15 wt. % of a thermosetting resin, and an average particle diameter of said graphite powder is set to a range of 15 to 125  $\mu\text{m}$ , comprising the steps of:

cold-molding said complex into a shape similar to a final molded shape at a pressure of 2 to 10 MPa forming thereby a preliminary molded member; and

placing said preliminary molded member in a mold to mold it into a final shape by applying a pressure of 20 to 50 MPa.

9. A method of producing a separator for a fuel cell according to claim 8, wherein the composition ratio of said thermosetting ratio in said complex is set to a range of 4 to 9 wt. %.

10. A method of producing a separator for a fuel cell according to claim 8, wherein the average particle diameter of said graphite powder is set to a range of 40 to 100  $\mu\text{m}$ .

13. A method of producing a separator for a fuel cell according to claim 8, wherein a final molding temperature of said complex is set to a range of 150 to 170°C.

14. A method of producing a separator for a fuel cell according to claim 8,

wherein the dimensions of said preliminary molded member before final molding and in a direction of the molding pressure are set to be about 1.0 to about 2.0 times the dimensions of said molded member.

15. A method of producing a separator for a fuel cell according to claim 9, wherein the dimensions of said preliminary molded member before final molding and in a direction of the molding pressure are set to be about 1.0 to about 2.0 times the dimensions of said final molded member.